

## A NEW NORTHERN EUPATORIUM.

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**E. boreale.** Stout, erect, 2 feet high or more, glabrous except as to the inflorescence: leaves ample, very thin, dark-green, feather-veined, the veins not light-colored, 3 or 4 inches long, often 3 inches broad toward the base, broadly subcordate-ovate, abruptly acuminate, coarsely and evenly serrate, the serratures 20 to 25 on each side, some of the larger with a secondary tooth; petioles  $\frac{3}{4}$  to  $1\frac{1}{2}$  inches long, somewhat ascending: cymes terminal, but with one pair from the axils of the uppermost leaves: peduncles and pedicels rather densely pubescent, but involucre glabrous, their bracts thin, only obscurely striate: tips of the corolla-teeth somewhat hairy: achenes dark-brown, sharply thin-angled, the angles of those of the outer series remarkably setose-hispidulous, the surface glabrous.

This is a proposed segregate from the *E. ageratoides* of recent authors, and seems to form, in New England and northward, the bulk of what passes for that species. The plant of Maryland and Virginia which I take for the true *E. ageratoides* is very different, exhibiting a much firmer leaf texture, the leaves distinctly cordate and with a somewhat falcate acumination, the whole of a decided yellow-green color, the veins almost white. And this plant is not only pubescent throughout, even to the involucre, it is leafy mostly about the middle of the stem, and the cymes are rather amply paniced above the leaves. It is such a plant as this, with paniced inflorescence and distinctly cordate leaves that the Cornutian figure calls for; and that old author, in his text, distinctly mentions the light-green hue of the foliage. The achenes in this are perfectly glabrous, as in all other Eupatoriums of this group except *E. boreale*. Good herbarium specimens of this New England plant have been distributed by Dr. Robinson from Jaffrey, N. H.; others are in various herbaria from the White Mountain region. It is in the Canadian Survey Herbarium from Bass River, Kent Co., New Brunswick, collected by Fowler, while the southernmost station from which I have seen a specimen is Ipswich, Mass., the specimens distributed long ago by Oakes.

Mr. Fernald's No. 57, from along the St. Johns River, Maine, is

a plant which I should not refer here. It is in some points more like *E. ageratoides*. Its foliage is light-green, the veins also whitish, the serratures of the leaf margin are small, and there is a sprinkling of almost scabrous hairs on both faces of the foliage; but the specimen seen by me is not in fruit, so that the character of the achenes can not be made out. It is a plant which should be investigated.

The only published description of an *Eupatorium* to which *E. boreale* is somewhat near to answering is that of Poiret's *E. Fraseri*. But that is to be a plant with a paniced inflorescence, the whole herb perfectly glabrous throughout; and its habitat is Carolina. There are other discrepancies also; but the outline and indentation of the leaf, as shown in La Marck's fig. 4 of Plate 672, suggests a possibility of identity between the two. Yet, upon such crude figures as this, nothing can, with anything approaching certainty, be established; and, after long hesitation, and careful study, I have thought it best to call attention to this northern plant under a new name, rather than to call it *E. Fraseri* with double or triple question marks.

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## SOME OBSERVATIONS ON ORCHID FRAGRANCE.

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By no means the least of the factors entering into the great problem of cross-fertilization in flowers is the matter of fragrance or other odor serving as one means of attracting insects and securing their co-operation in the plant's struggle to perpetuate its kind. Singularly enough comparatively little scientific attention has been given to this important feature, investigations along the line of insect-pollination tending rather to the subject of interesting mechanical and chemical contrivances, to coloring, nectar-receptacles, honey-guides, etc.

It is not my purpose here to enter into any considerable discussion of the subject, but simply, by way of a suggestion, to note the results of careful observations upon our native orchids. The orchid, whose sole serious purpose in life seems to be self-perpetuation, presents unexcelled opportunities for the study of anything connected with cross-fertilization. We may reasonably expect it then to illustrate well the various facts of flower-fragrance and its relations to insects.